



## ADVISORY NOTICE

No. 07-005

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**SUBJECT:** Biphasic Defibrillators

**TO:** All Instructor-Coordinators  
All Service Chiefs  
All Training Officers

**FROM:** Samuel W. Adams, Training Coordinator  
Division of Emergency Medical Services

**ISSUED:** August 28, 2007

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In response to a number of recent inquiries, the Division of EMS has prepared the following brief information regarding the use of biphasic defibrillators (both manual and automatic.) This information is intended to supplement the current *Rhode Island Prehospital Care Protocols and Standing Orders*.

Cardiac defibrillators use a pulse of electrical energy to "reset" the heart while in ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT). Where traditional (monophasic) defibrillators deliver their current in only one direction, the newer biphasic defibrillators reverse their current in mid-shock. Research has demonstrated that this mid-shock polarity change lowers the energy required to successfully defibrillate the heart, reducing myocardial damage and lowering the risk of burns.

Unlike monophasic defibrillators, the energy settings and waveforms used in biphasic defibrillators vary from one manufacturer to another. In developing their biphasic equipment, the leading manufacturers have each conducted their own research to identify optimum waveforms and energy settings for their products. Thus where one vendor's equipment may call for biphasic shocks at 200/300/360J, another brand may call for 120/150/170J. In addition, some biphasic models measure the patient's electrical resistance and adjust their output to provide the "delivered shock" desired (i.e., the energy being discharged by the unit may be higher or lower than the energy level you selected.)

Therefore, the *RI Prehospital Care Protocols and Standing Orders* cannot be as prescriptive for biphasic defibrillation as they are for traditional monophasic defibrillation. Instead, we follow the American Heart Association's guidelines by simply instructing providers to follow the recommendations of their biphasic equipment manufacturer.

As stated in the protocols, all services should follow the recommendations of their biphasic equipment manufacturer regarding the appropriate settings to use for their specific equipment. They should also ensure that this information is provided to all EMTs in their service. Likewise, all EMTs are individually responsible to ensure that they are familiar with the equipment assigned to them and request guidance from their supervisor or training officer if needed.

For any questions or concerns regarding biphasic defibrillation, please contact our physician consultant, Dr. Ken Williams, at [kwilliams@lifespan.org](mailto:kwilliams@lifespan.org) or contact the Division of EMS at (401) 222-2401.